PROJECT TITLE : Unit Operations II

PERIOD COVERED : January 26th - February 29th, 1980

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Nitrate Reduction of Strips

The pilot plant scale extractor arrived mid February. In the week from February 18th to 22nd Mr. Jess from Ex-Technik was present in Neuchâtel for the start-up of the equipment. The 12 cells (chambers) of the rotor are used as follows :

Cell 1	:	Feeding (strips inlet)
Cell 2 - 3	:	Pre-humidification of strips
Cell 4 - 9	:	5 stage counter-current extraction
Cell 10	:	Dewatering zone
Cell 11	:	Strips outlet
Cell 12	:	Empty zone

Already the first trials (under Mr. Jess's supervision) showed positive results. The rotocell-extractor treats the strips very carefully. Now we are carrying out trials under different working conditions (temperature, strips to water ratio, extraction time).
In summary we obtained the following first results :

NO_3-N reduction of strips	extr. time	temperature	strips : water
93 %	40 min.	80°C	1 : 10
88 %	40 min.	50°C	1 : 10
95 %	40 min.	80°C	1 : 15
90 %	40 min.	50°C	1 : 15
85 %	20 min.	80°C	1 : 10
75 %	20 min.	50°C	1 : 10

At 40 minutes residence time the use of more water for extraction (1 : 15 instead of 1 : 10) increases the NO_3-N reduction of the strips by only 2 %.

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Dust sieving for MONIQUE/RCB

Contact was taken with Chauvin in Grenoble, supplier of the sieving machine in Onnens.

A representative of this firm visited Onnens on February 19th to find a solution to the clogging problems of the lower sieves (100 mesh steel web).

Chauvin's operational experience on similar materials is that the product moisture plays an important role. The average moistures of the production dust in the silo are between 8 and 9% O.V.
If the dust were dried (3 - 4% O.V.) before sieving the clogging problems would be significantly reduced.

The conclusion is that the sieves have to be cleaned from time to time, if necessary every day (normally once a week). To ease this operation a complete sieving frame should be ordered. Chauvin will send us an offer. They will hopefully propose other improvements.

Dust stock situation

The dust stock in Onnens continued to decrease in February to approx. 126 tons.

PROCESS DEVELOPMENT

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KPA/NIL/sde

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